CLAIMS

1. A data processor for playing back video and audio from a data stream including video data and audio data, each of the video and audio data being provided with time
5 information representing its presentation time, the data processor comprising:

a stream acquiring section for acquiring a first data stream and a second data stream continuously;

an inserting section for inserting boundary-setting dummy
10 data into a data location where the first and second data streams switch each other;

an analyzing section, which detects the dummy data, assigns different pieces of identification information to the first and second data streams, and associates the
15 identification information with the video and audio data of each said data stream;

a control section for controlling the respective output timings of video represented by video data and audio represented by audio data by reference to the time information
20 of the video data and the time information of the audio data

that are associated with the same piece of identification information; and

an output section for outputting the video and the audio at the output timings.

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2. The data processor of claim 1, wherein the control section finds the respective presentation end times of the video and the audio of the first data stream according to the time information added to the video data and the time

10 information added to the audio data, and

wherein if the presentation end time of the audio is later than that of the video, the control section stops outputting the audio from the presentation end time of the video through the presentation end time of the audio.

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3. The data processor of claim 1, wherein the control section finds the respective presentation start times of the video and the audio of the second data stream according to the time information added to the video data and the time

20 information added to the audio data, and

wherein if the presentation start time of the audio is earlier than that of the video, the control section stops outputting the audio from the presentation start time of the audio through the presentation start time of the video.

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4. The data processor of claim 1, wherein when finding given video data and audio data associated with different pieces of identification information, the control section gets only the video represented by the video data output first, and

10 wherein when finding video data, obtained after the video has been played back, and the audio data associated with the same piece of identification information, the control section controls the output timings of the video represented by the video data and the audio represented by the audio data in

15 accordance with the time information of the video data and the time information of the audio data that are associated with the same piece of identification information.

5. The data processor of claim 1, wherein the stream

20 acquiring section is able to acquire three or more data

streams continuously, and

wherein the inserting section inserts dummy data, which has monotonically increasing or decreasing values corresponding to the identification information, into every data location where associated two of the continuously acquired data stream switch each other.

6. The data processor of claim 5, wherein when finding the piece of identification information associated with the audio data agreeing with a piece of identification information associated with video data representing video that was output in the past, the control section stops outputting audio represented by the audio data and starts outputting audio represented by audio data having the same piece of identification information as that associated with the video data of the video being output currently.

7. The data processor of claim 1, wherein when finding the piece of identification information associated with the audio data agreeing with a piece of identification information

associated with video data representing video that has not been output yet, the control section stops outputting audio represented by the audio data and does not start outputting the audio represented by the audio data until the piece of

5 identification information agrees with a piece of identification information associated with video data acquired afterward.

8. The data processor of claim 1, wherein each said data

10 stream has a packet structure including packets that store video data and packets that store audio data, and

wherein the inserting section inserts the boundary-setting dummy packet between the last packet of the first data stream and the first packet of the second data stream.

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9. A data processing method for playing back video and audio from a data stream including video data and audio data, each of the video and audio data being provided with time information representing its presentation time, the method

20 comprising the steps of:

acquiring a first data stream and a second data stream

continuously;

inserting boundary-setting dummy data into a data

location where the first and second data streams switch each

5 other;

detecting the dummy data, assigning different pieces of

identification information to the first and second data

streams, and associating the identification information with

the video and audio data of each said data stream;

10 controlling the respective output timings of video

represented by video data and audio represented by audio data

by reference to the time information of the video data and the

time information of the audio data that are associated with

the same piece of identification information; and

15 outputting the video and the audio at the output

timings.

10. The data processing method of claim 9, wherein the

step of controlling includes the steps of:

20 finding the respective presentation end times of the

video and the audio of the first data stream according to the time information added to the video data and the time information added to the audio data, and

if the presentation end time of the audio is later than that of the video, stopping outputting the audio from the presentation end time of the video through the presentation end time of the audio.

11. The data processing method of claim 9, wherein the step of controlling includes the steps of:

finding the respective presentation start times of the video and the audio of the second data stream according to the time information added to the video data and the time information added to the audio data, and

if the presentation start time of the audio is earlier than that of the video, stopping outputting the audio from the presentation start time of the audio through the presentation start time of the video.

12. The data processing method of claim 9, wherein the

step of controlling includes the steps of:

when finding given video data and audio data associated with different pieces of identification information, getting only the video represented by the video data output first, and

5   when finding video data, obtained after the video has been played back, and the audio data associated with the same piece of identification information, controlling the output timings of the video represented by the video data and the audio represented by the audio data in accordance with the

10   time information of the video data and the time information of the audio data that are associated with the same piece of identification information.

13. The data processing method of claim 9, wherein the

15   step of acquiring includes acquiring three or more data streams continuously, and

wherein the step of inserting includes inserting dummy data, which has monotonically increasing or decreasing values corresponding to the identification information, into every

20   data location where associated two of the continuously

acquired data stream switch each other.

14. The data processing method of claim 13, wherein the step of controlling includes the steps of:

5   when finding the piece of identification information associated with the audio data agreeing with a piece of identification information associated with video data representing video that was output in the past, stopping outputting audio represented by the audio data and

10   starting outputting audio represented by audio data having the same piece of identification information as that associated with the video data of the video being output currently.

15   15. The data processing method of claim 9, wherein the step of controlling includes the steps of:

when finding the piece of identification information associated with the audio data agreeing with a piece of identification information associated with video data

20   representing video that has not been output yet, stopping

outputting audio represented by the audio data and

not starting outputting the audio represented by the audio data until the piece of identification information agrees with a piece of identification information associated with video data acquired afterward.

16. The data processing method of claim 9, wherein each said data stream has a packet structure including packets that store video data and packets that store audio data, and

wherein the step of inserting includes inserting the boundary-setting dummy packet between the last packet of the first data stream and the first packet of the second data stream.